months. Stored up, yet held in feeble combination, a combination so weak that the vital forces of the fresh-growing vegetation can easily overcome it, and resolve once more into carbonate of lime, carbon, and oxygen the bicarbonate of lime contained in the water *.

Thus beautifully are the necessary irregularities in the purifying action of the plant compensated and provided for, that the balance of existence between the animal and vegetable organisms be not disturbed or overthrown, and thus additional proof is furnished, if such were needed, of the wisdom of that creative power that has ordered all things to work together for good, and by endowing certain bodies with such seemingly minute and insignificant affinities, maintains the glorious harmony of the whole.

II. "Results of Observations of Atmospheric Electricity at Kew Observatory, and at Windsor, Nova Scotia." By Joseph D. Everett, D.C.L., F.R.S.E., Assistant to the Professor of Mathematics in the University of Glasgow. Communicated by Sir William Thomson. Received October 14, 1867.

(Abstract.)

The paper commences with an account of the concluding observations taken by the author at Windsor, N.S., of which the previous portion has already been published in the 'Proceedings,' vols. xii. & xiv.

It then goes on to describe the self-recording apparatus employed at Kew Observatory for the observation of atmospheric electricity, and the method of procedure employed in measuring and reducing the curves thus obtained, this portion of the work having been performed in the Physical Laboratory of the University of Glasgow.

Tables are given showing the mean hourly values of the electrical potential for each month, and the mean monthly values are hence derived. These values for Kew are compared with the corresponding values for Windsor, N.S., and remarkable differences are shown to exist between the curves, both diurnal and annual, for the two places.

The hourly means at Kew for the mean of the year are represented by the following numbers :—

23^h	0^h	1^h	2^h	3^h	4^h	5^h	6^h	7^h
1·91	1·96	1·92	1·93	1·95	2·08	2·29	2·58	2·86
8^h	9^h	10^h	11^h	12^h	13^h	14^h	15^h	16^h
2·96	2·93	2·74	2·42	2·12	1·86	1·68	1·58	1·54
17^h	18^h	19^h	20^h	21^h	22^h			
1·52	1·64	1·96	2·26	2·28	2·13.			

These numbers indicate a principal maximum between 8^h and 9^h, and a

* The rapid growth of submerged vegetation in rivers and waters containing a considerable amount of carbonate of lime must have been observed by all interested in the subject, in some cases obliging the cleansing of such streams three or four times during the year.

secondary maximum between 20^h and 21^h. At Windsor, on the other hand, the mean potential about 9^h was in every month, without exception, less than at the other principal times of observation, viz. about 21^h and 14^h.

The following Table shows the ratio of the mean monthly to the mean annual potential for the whole series of observations at both places:—

Kew.

June	1862	·770	June	1863	·681
July	,,	·773	July	,,	·643
Aug.	,,	·836	Aug.	,,	·685
Sept.	,,	·845	Sept.	,,	·854
Oct.	,,	·981	Oct.	,,	1·000
Nov.	,,	1·600	Nov.	,,	1·390
Dec.	,,	1·188	Dec.	,,	1·460
Jan.	1863	1·033	Jan.	1864	1·226
Feb.	,,	1·333	Feb.	,,	1·263
March	,,	1·160	March	,,	1·375
April	;,	·920	April	,,	·831
May	,,	·672	May	,,	·549

Windsor, N.S.

Oct.	1862	·832	Oct.	1863	1·033
Nov.	,,	·766	Nov.	,,	·949
Dec.	,,	1·010	Dec.	,,	1·110
Jan.	1863	1·057	Jan.	1864	1·125
Feb.	,,	1·432	Feb.	,,	?
March	,,	1·396	March	,,	1·416
April	,,	1·023	April	,,	1·026
May	,,	·796	May	,,	·985
June	,,	·720	June	,,	·799
July	,,	·755	July	,,	·885
Aug.	,,	·952	Aug.	,,	(·862)
Sept.	,,	·985			

The last step in the reductions consisted in expressing the variations, both diurnal and annual, at Kew, and the annual variations at Windsor, by the first two terms of an harmonic series.

In the case of the diurnal variations at Kew, the amplitudes of the two terms were nearly equal, but the epoch was much more uniform in its values (whether in comparing one year with the other or in comparing one month with another in the same year) for the second term than for the first.

In the case of the annual variations, the amplitude of the second term at Kew was almost inappreciable, while at Windsor it was greater than that of the first term.